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10/594,323	09/27/2006	Masahiro Kawamura	296025US0PCT	3336
22850 7590 09/03/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER CLARK, GREGORY D				
ART UNIT 1794		PAPER NUMBER		
NOTIFICATION DATE 09/03/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/594,323

Applicant(s)

KAWAMURA ET AL.

Examiner

GREGORY CLARK

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 3,5 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 09/27/2008, 09/12/2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

Claim 8 is objected to because of the following informalities: Claim 8

depends on claim 2 and refers to general formula(s) 1-I, 2-I, 3-I, 4-I or 5-I while claim 2 only contain formula(s) 1-I and 1-II. Appropriate correction is required.

Claim 9 is objected to because of the following informalities: Claim 9

depends on claim 2 and refers to general formula(s) 1-I, 2-I, 3-I, 4-I or 5-I and Ar¹ to Ar³ while claim 2 only contains formula(s) 1-I and 1-II with substituent Ar¹. Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

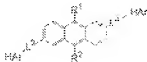
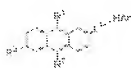
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are provisionally rejected on the ground of nonstatutory double patenting over claim 1 of copending Application 111722609. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The instant application claim 1 claims a derivative of a heterocyclic compound having a nitrogen atom represented by compounds A-1 (section 2) and C-1 (section 18) (shown below). Where HAR represents the heteroaryl groups A-3 and A-4 and Ar1a-Ar3a (section 2) can be a single bond (shown below).

The copending application claims a derivative of a heterocyclic compound having a nitrogen atom represented by Formula QZ-1 and QZ-2 shown below:



Formula(s) QZ-1/ QZ-2

Where L1-L3 can be a single bond and HAR is substituted or un-substituted heteroaryl ring 3 to 60 carbons.

Heteroaryl ring(s) 3 to 60 carbons attached to an anthracene ring would be obvious and heteroaryl groups A-3 and A-4 would be included in the groups covered by HAr in Formula(s) QZ-1 and QZ-2.

Claim Rejections - 35 USC § 102

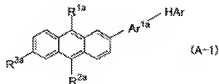
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

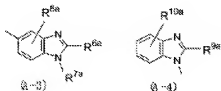
1. **Claims 1-2 and 10-15 are rejected under 35 U.S.C. 102(a) as unpatentable over Yamamoto (WO 2004080975 A1). Since WO 2004080975 A1 is in a Non-English language, US 20060147747 will be relied upon as a direct translation as it is the US filed version of the same application. As a result, no translation of the original WO 2004080975 A1 will be supplied with this office.**

2. **Regarding Claims 1 and 2, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (A-1):**



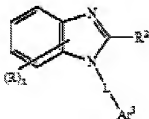
Art Unit: 1794

Wherein R^{1a} to R^{2a} each represent a substituent, Ar^{1a} represents a single bond or a divalent connecting group, and HAr represents a group represented by the following general formula (A-3) or (A-4):

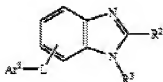


Ar^{6a} to Ar^{10a} each represent a substituent.

Yamamoto discloses a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula 1 (page 1):



Formula 1

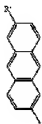


Formula 2

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Whereas:

- R^2 and R^3 each independently represent a hydrogen atom, an aryl group having 6 to 60 carbon atoms (paragraph 9).
- L represents an arylene group having 6 to 60 carbon atoms and may have a substituent (paragraph 10) which corresponds to applicants' Ar^a as a divalent.
- Ar_3 represents an arylene group having 6 to 60 carbon atoms and may have a substituent (paragraph 13). A specific example of the arylene group is an anthracene ring (page 8) such as Fragment 1 shown below:



Fragment 1

As a specific fragment is shown which when placed in the generic Formula(s) 1 and 2 meets applicants' structure(s) A-1, it is anticipated.

3. **Regarding Claims 10**, Yamamoto discloses an organic electroluminescence device comprising at least one organic compound layer containing a light emitting layer sandwiched between a pair of electrodes (anode and cathode), wherein the device contains the derivative of heterocyclic compound having nitrogen atom (abstract).

Yamamoto also discloses that the light emitting layer is made of an organic thin film layer (paragraph 57).

4. **Regarding Claims 11 and 12**, Yamamoto discloses that the heterocyclic compound having nitrogen atom can be included in the light emitting layer (paragraph 15).

5. **Regarding Claim 13**, Yamamoto discloses that the heterocyclic compound having nitrogen atom can be in an electron injecting layer (paragraph 5). The electron injecting layer is a thin film (paragraph 77).

6. **Regarding Claims 14 and 15**, Yamamoto discloses a layer containing the electron injecting material and/or the electron transporting material comprises reductive dopant (paragraph 56). The reductive dopant include at least one compound selected from alkali metals, alkali metal complexes, alkali metal compounds, alkaline earth metals, alkaline earth metal complexes, alkaline earth metal compounds, rare earth metals, rare earth metal complexes and rare earth metal compounds (paragraph 73).

7. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

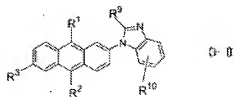
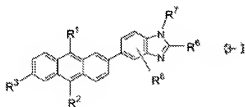
Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 4 and 7-9 are rejected under 35 U.S.C. 103(a) as unpatentable over Yamamoto (WO 2004080975 A1).** Since WO 2004080975 A1 is in a Non-English language, US 20060147747 will be relied upon as a direct translation. As a result, no translation of the original WO 2004080975 A1 will be supplied with this office.

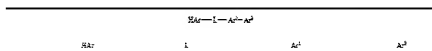
10. **Regarding Claim 4,** the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula(s) (B-1 and B-2):

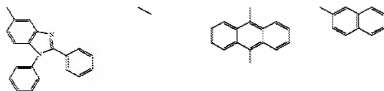


Wherein:

- R^1 to R^2 each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted hydrocarbon, a substituted or unsubstituted aryl group, provided cannot be simultaneously represent hydrogen atoms.
- R^3 can be a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group;
- R^6 - R^{10} can be unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group;

Yamamoto discloses derivative of heterocyclic compound(s) having a nitrogen atom represented by the following general scheme shown below (pages 30 and 32):





2-1

Examples 9-1 (page 32) and 2-1 (page 30) disclosed by Yamamoto show benzimidazole moieties with the nitrogen (9-1) position and the carbon (2-1) position bonded directly to the anthracene ring which is bonded to the naphthalene ring via the 9, 10 anthracene ring positions. Examples 9-1 and 2-1 differ from the applicants' claimed structure which shows substitution at the 2 and 6 positions of the anthracene ring.

As the applicant indicates that R^3 can be an aryl group, the structures disclosed by Yamamoto (9-1 and 2-1) are structural isomers with the generic compounds B-1 and B-II claimed by the applicant.

The examiner takes the position that 2/6 and 9/10 anthracene ring substitution would result in compounds with similar electronic properties within the conjugated ring system absent unexpected results. Variations in the attachment positions on the anthracene ring system would have been obvious.

11. **Regarding Claim 4**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula(s) (B-1 and B-2) shown above.

Compounds B-1 and B-2 claimed by the applicant contains the benzimidazole (N and C attachment sites) connected to an anthracene ring that is connected to an R3 substituent which can be a substituted or unsubstituted aryl group.

Formula(s) 1 and 2 (shown above) show benzimidazole (N and C attachment sites) connects to a linking group L that is connected to an aryl group Ar3. The L group which represents an arylene group having 6 to 60 carbon atoms that would be inclusive of a substituted anthracene (contains 14 aromatic carbon atoms) claimed by the applicant.

12. **Regarding Claim 7**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein R^{7a} in the general formula (A-3) represents a substituted or unsubstituted aliphatic hydrocarbon group, or Ar^{1a} in the general formulae (A-I) represents a substituted or unsubstituted divalent aliphatic hydrocarbon group.

Yamamoto discloses that R^3 in Formula 2 represent a hydrogen atom, an aryl group having 6 to 60 carbon atoms (aryl) (paragraph 9) and L (applicants' Ar^{1a}) represents an arylene group having 6 to 60 carbon atoms. Yamamoto fails to disclose an aliphatic substituent bonded to the benzimidazole ring.

The examiner takes the position that it is common to use aromatic and aliphatic substituents for side chain and spacer groups. At the time of the invention a person of ordinary skills in the art would have selected from known substituent groups which would have included the aliphatic groups claimed by the applicant.

13. **Regarding Claims 8 and 9**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom according to claim 2, wherein R^7 in the general formula(s) (1-I) and (1-II) represents a substituted or unsubstituted aliphatic hydrocarbon group, or Ar^1 in the general formulae (A-I) represents a substituted or unsubstituted divalent aliphatic hydrocarbon group.

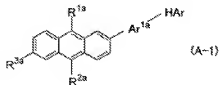
Yamamoto discloses that R^7 can be unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group and Ar^1 represents an arylene group having 6 to 60 carbon atoms and may have a substituent (paragraph 10). Yamamoto fails to disclose an aliphatic substituent bonded to the benzimidazole ring or as a linking group.

The examiner takes the position that it is common to use aromatic and aliphatic substituents for side chain and spacer groups. At the time of the invention a person of ordinary skills in the art would have selected from known substituent groups which would have included the aliphatic groups claimed by the applicant.

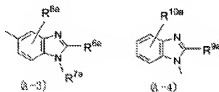
14. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

15. **Claims 1-15 are rejected under 35 U.S.C. 103(a) as unpatentable over Yoon (WO 2003/060956).**

16. Regarding Claims 1 and 2, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (A-1):

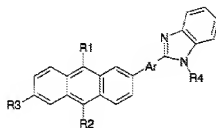


Wherein R^{1a} to R^{2a} each represent a substituent, Ar^{1a} represents a single bond or a divalent connecting group, and HAr represents a group represented by the following general formula (A-3) or (A-4):



Ar^{6a} to Ar^{10a} each represent a substituent.

Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-1) (page 5-7):



Y-1

wherein

R¹ and R² are independently or simultaneously a hydrogen atom, a C₁₋₆₀ aliphatic hydrocarbon, benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or an aromatic ring, and R¹ and R² cannot simultaneously be hydrogen atoms;

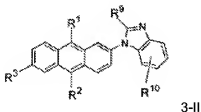
Ar is benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or an aromatic ring;

R⁴ is a hydrogen atom, a C₁₋₁₂ alkyl or aliphatic hydrocarbon, benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or aromatic ring.

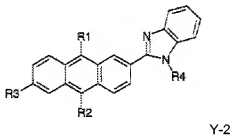
Formula Y-1 discloses by Yoon differs from the applicants' Formula A-1/A-4 in that Y-1 is connected to the anthracene ring via 2 position of the heterocyclic ring at carbon as opposed to the 1 position at nitrogen. Formula Y-1 can be substituted with an aromatic group at the R4 position.

The examiner takes the position that Formula Y-1 has conjugation throughout the molecule and would be considered as a structural isomer in comparison to the applicants' Formula A-1/A-4. The mere attachment of the anthracene group to the heterocyclic ring via different positions around the said heterocyclic ring would have been obvious and the resulting electronic properties would be expected to be similar to Formula A-1/A-4 claimed by the applicant, absent unexpected results.

17. **Regarding Claim 4**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (3-II):



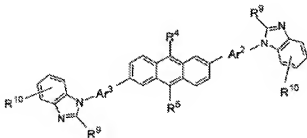
Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-2) (page 5):



Formula Y-2 discloses by Yoon differs from the applicants' Formula 3-II in that Y-2 is connected to the anthracene ring via 2 position of the heterocyclic ring at carbon as opposed to the 1 position at nitrogen. Formula Y-2 can be substituted with an aromatic group at the R4 position (page 7).

The examiner takes the position that the Formula Y-2 has conjugation throughout the molecule and would be considered as a structural isomer in comparison to the applicants' Formula 3-II. The mere attachment of the anthracene group to the heterocyclic ring via different positions around the said heterocyclic ring would have been obvious and the resulting electronic properties would be expected to be similar to Formula 3-II claimed by the applicant, absent unexpected results.

18. **Regarding Claim 3**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (C-1):



C-1

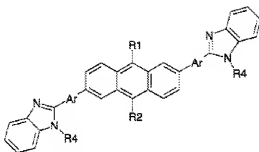
wherein R⁴ and R⁵ each independently represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that R⁴ and R⁵ cannot simultaneously represent hydrogen atoms;

R⁶ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group;

R¹⁰ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group

Ar¹ and Ar² each independently represent a group selected from a substituted or unsubstituted arylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted divalent aliphatic hydrocarbon group.

Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-3) (page 5):

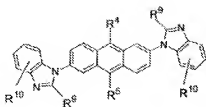


Y-3

Formula Y-3 discloses by Yoon differs from the applicants' Formula C-1 in that Y-3 is connected to the anthracene ring via 2 position of the heterocyclic ring at carbon as opposed to the 1 position at nitrogen. Formula Y-3 can be substituted with an aromatic group at the R4 position (page 7, lines 1-3) and Ar is an aromatic ring or aromatic heterocyclic ring (page 6, lines 10-12).

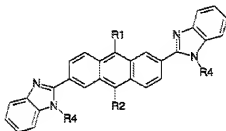
The examiner takes the position that the Formula Y-3 has conjugation throughout the molecule and would be considered as a structural isomer in comparison to the applicants' Formula C-1. The mere attachment of the anthracene group to the heterocyclic ring via different positions around the said heterocyclic ring would have been obvious and the resulting electronic properties would be expected to be similar to Formula C-1 claimed by the applicant, absent unexpected results.

19. **Regarding Claim 5**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (C-2):



C-2

Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-4) (page 6):



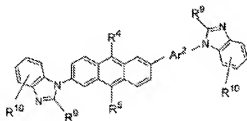
Y-4

Formula Y-4 discloses by Yoon differs from the applicants' Formula C-2 in that Y-4 is connected to the anthracene ring via 2 position of the heterocyclic ring at carbon as opposed to the 1 position at nitrogen. Formula Y-4 can be substituted with an aromatic group at the R4 position (page 6, lines 10-12).

The examiner takes the position that the Formula Y-4 has conjugation throughout the molecule and would be considered as a structural isomer in comparison to the applicants' Formula C-2. The mere attachment of the anthracene group to the heterocyclic ring via different positions around the said heterocyclic ring would have

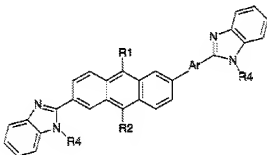
been obvious and the resulting electronic properties would be expected to be similar to Formula C-2 claimed by the applicant, absent unexpected results.

20. **Regarding Claim 6**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (C-3):



C-3

Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-5) (page 6):



Y-5

Formula Y-5 discloses by Yoon differs from the applicants' Formula C-3 in that Y-5 is connected to the anthracene ring via 2 position of the heterocyclic ring at carbon as

opposed to the 1 position at nitrogen. Formula Y-5 can be substituted with an aromatic group at the R4 position (page 6, lines 10-12).

The examiner takes the position that Formula Y-5 has conjugation through the molecule and would be considered as a structural isomer in comparison to the applicants' Formula C-3. The mere attachment of the anthracene group to the heterocyclic ring via different positions around the said heterocyclic ring would have been obvious and the resulting electronic properties would be expected to be similar to Formula C-3 claimed by the applicant, absent unexpected results.

21. **Regarding Claims 7-9**, Yoon discloses that position R4 of Formula(s) Y-1 through Y-4 can be aliphatic (page 7, lines 1-3) (per claim 7). Yoon fails to mention that the Ar position(s) of Formula(s) Y-1 through Y-4 can be substituted with an aliphatic group.

The examiner takes the position that Yoon discloses the essential functional components of the claimed molecule(s) that include the anthracene core connected to the heterocyclic ring(s)). The type of spacer group is deemed not to be essential to the functioning capacity of the claimed molecule and as such it would have been obvious to synthesize materials with aromatic or aliphatic spacer groups to link the anthracene core and the heterocyclic ring, absent unexpected results.

22. **Regarding Claims 10, 12-13**, Yoon discloses an organic electroluminescent device (display) with at least one organic layer containing Formula(s) Y-1 through Y-4 the located between the anode and the cathode (per claim 10) (page 7, lines 9-11). This includes the light emitting layer (per claim 12) and the electron injection layer (per claim 13) (page 7, line 14).

23. **Regarding Claim 11**, Yoon discloses an organic electroluminescent device (display) with at least one organic layer containing Formula(s) Y-1 through Y-4 the located between the anode and the cathode (page 7, lines 9-13). This includes the light emitting layer (domain) (page 7, line 14).

24. **Claims 14-15 are rejected under 35 U.S.C. 103(a) as unpatentable over Yoon (WO 2003/060956) in view of Choog (6,064,151).**

25. **Regarding Claims 14-15**, Yoon discloses that the electron transporting layer can be doped with conductive metals having low work-functions to enhance the electron injection from the cathode (page 12, lines 23-25) (per claim 14).

Choog discloses that the dopants often added to facilitate electron injection includes alkaline metal compounds (column 1, lines 65-66).

The examiner takes the position that it is well known in the art that the reactive dopants added to the electron injection layer referred to by Yoon as conductive metals

include the alkaline metal compounds disclosed by Choog that reads on the applicants' alkali metal limitation (per claim 15).

Conclusion

Comment [d1]: Since the US case of the PCT document you are using for art has common inventions you should have looked for double patenting. I think that you have a double patenting issue.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is (571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

GREGORY CLARK/GDC/
Examiner

